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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,441	10/15/2003	Yoshihiro Nonaka	Q78002	8870

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SUGHRUE, MION, ZINN, MACPEAK & SEAS
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037

EXAMINER

TRA, ANH QUAN

ART UNIT PAPER NUMBER

2816

DATE MAILED: 11/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/684,441

Applicant(s)

NONAKA, YOSHIHIRO

Examiner

Quan Tra

Art Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-41 is/are allowed.
- 6) ☒ Claim(s) 42-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/15/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawing figure 25 is objected because it shows the input, the output of stage 12 and the output of stage 1K are directly coupled to each other. The circuit will not work as recited in the specification with such connection.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 42-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 42 is indefinite because there is no antecedent basis for the limitation "said first level shift circuit" in lines 6-7.

Claim 43 is indefinite because there is no antecedent basis for the limitations "said ground terminal" in line 9 and "said second charging switch element" in line 13. It is seem that the second charging switch element is the claimed "second charging element".

Claim 44 recites "the second charging switching element comprising a N-channel MOS transistor". However, figure 25 shows that the second charging (switching) element is PMOS transistor.

Claims 44 and 45 are rejected as including the indefiniteness of claims 42 and 43.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 42-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Applicant's prior art figures 1-5.

As to claim 42, the prior art figure 1 shows a step-up apparatus comprising: a level shift circuit (1) for receiving a first clock signal ($\Phi 0$) to generate a 2nd clock signal ($\Phi 1$), a third clock signal ($\Phi 1$), -, a K-th clock signal ($K=2$) having a definite voltage swing; and a charge pump circuit (3), connected to the level shift circuit, for stepping up a power supply voltage (VDD) at a power supply voltage terminal using the first, second, K-th clock signals to generate positive voltage.

Insofar as understood to claim 43, the prior art figure 5 shows that the charge pump circuit comprises: a first circuit (31) including a first step-up switching element (323), connected to the power supply voltage terminal, for generating the power supply voltage in accordance with the first clock signal; an i-th ($i=2$) circuit (32) including a charging capacitor (321), a first charging switching element (322) connected between ground terminal and the charging capacitor, a second charging element (323) connected between the charging capacitor and the

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power supply voltage terminal, and a second step-up switching element (324) connected to the charging capacitor and the second charging switching element for generating an i times the power supply voltage.

5. Claim 42 is rejected under 35 U.S.C. 102(b) as being anticipated by Johnson et al. (USP 6525949).

Johnson et al.'s figure 2 shows a step-up apparatus comprising: a level shift circuit (147, 148) for receiving a first clock signal (CLK) to generate a 2nd clock signal (153), a third clock signal (155), ..., a K -th clock signal ($K=3$) having a definite voltage swing; and a charge pump circuit (132, 134, 136), connected to the level shift circuit, for stepping up a power supply voltage (VR) at a power supply voltage terminal using the first, second, K -th clock signals to generate positive voltage.

Allowable Subject Matter

6. Claims 1-41 are allowed.

7. Claims 44-46 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claims 1-41 are allowable because the prior art fails to teach or suggest the polarity inverting circuit coupled to both of the charge pump circuit and the second level shifter.

Claim 44 would be allowable because the prior art fails to teach the step-up switching element of the i -th circuit is controlled by i -th clock signal.

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Claims 45-46 would be allowable because the prior art fails to teach or suggest that the level shift circuit comprises an i-th level shift unit is powered by (i-2)*VDD, (i-1)*VDD and (i-VDD).

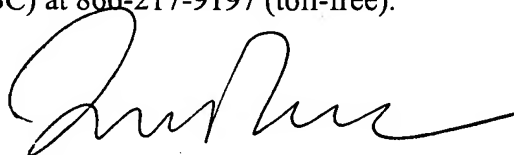
Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. These references are cited as interest because they show some circuits analogous to the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan Tra whose telephone number is 571-272-1755. The examiner can normally be reached on 8:00 A.M.-5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Quan Tra
Primary Examiner

November 17, 2004